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TITLE: UNIVERSAL PORTABLE ILLUMINATED ARTWORK DISPLAY MODULE
Application No. 09/878,456

APPLICANT STATES ORIGINAL SPECIFICATION IS REPLACED BY THIS SUBSTITUTE SPECIFICATION DATED 09/09/2007, WHEREIN NO NEW MATTER HAS BEEN INTRODUCED.

SPECIFICATION

CROSS-REFERENCE TO RELATED APPLICATIONS

This application is benefited by dating of previous filing of Provisional Patent Application No. 6/211,199 filed 06/13/00 by inventor Edgar M. Nash.

STATEMENT REGARDING FEDERALLY SPONSORED RESEARCH AND DEVELOPMENT

Not applicable

BACKGROUND OF INVENTION

From ancient times to the present, artful depictions, especially those held in frames, have remained lifeless and still. Inventor now brings into focus new art forms that until now have been unexplored, but bear incredible utility, and teaches innovative artful combinations of lighting, artworks production and display (including within picture frames) that promises the release of glorious beauty not attainable in the past.. Present invention introduces entirely new and vigorous art expressions into a field occupied and compromised by old art that failed to recognize the many possible art innovations hitherto lying dormant in a very fertile domain.

DESCRIPTION OF RELATED ART

A thorough scrutiny of prior art failed to bring into view any invention that addressed the claims held in the present invention. Patents scrutinized include US-1,888,406 (Payberg), US-3,680,238 (Mikolay) and US-6,989,326 (Campbell), all of Classification 40-564.

Payberg teaches a display card and framework to hold that card. The card is primary to this invention, and severely limits its utility other than as an illuminated sign of some type. The "framework" is secondary, and only illuminates the display card. No mention whatever is made of the use of this item for display of artworks as such. My invention does not impinge upon Payberg in any manner.

Mikolay also relates only to the invention being used as a sign used to simulate neon illumination. This invention does not claim any configuration or use as an artwork display device. The independent claim says it is "an illuminated sign". My invention does not infringe in any manner with Mikolay.

Campbell claims to be a "light fixture for displaying a message". The "message" is defined as a sign. Further, the light source(s) are mounted on a panel separate from the light box, and is termed "a lighting assembly panel" inserted into the light box. The sign panel(s) are interchangeably inserted into a "sign slot" and not disposed to be displayed in a display frame such as a picture frame. This is not an artwork display unit, and only a commercially-oriented device. My invention does not intrude on any part of the Campbell claims.

OBJECT AND ADVANTAGES

It is the object of present invention to enable multiple innovative new art modes permitted by flexible adaptability of the basic Universal Portable Illuminated Artwork Module and to encourage such diversification through classically elementary means. Present invention usefully combines widely diversified elements and features that are not addressed in prior art: (1) Portability of Module assembly permits endless attachment to or onto separate display devices

such as picture frames of choice; and (2) Simple and inexpensive structure; and (3) Optimal diffusion of light permitting no bright spots or shadows on the artwork displayed; and (4) A wide variety of light source categories to play upon artwork displayed, used individually or in numerous combinations to enable a wide spectrum of variably-adjustable lighting effects heretofore unattainable; and (5) Simple substitution of multiple platens; and (6) Platen-supported artwork applied directly into, behind or overlaying Platen; and (7) Many genres of platen artwork even including depictions that are compositely-layered as in collage works; and (8) A Module assembly that is light in weight and inexpensive to produce combining elements widely available commercially.

SUMMARY

Present invention encourages exceptional artistic flexibility and creativity by means of a simple and inexpensive but widely-variable light-box backlighting a translucent or transparent platen supporting artwork to be displayed, all being a completely new, unique and important art medium utilizing many variations of the platen itself. The invention permits expression of artistic dimensions made possible by innovative employment of platen/lighting variations that themselves are dimmable, coupled with sound to control production of displays uniquely brilliant and delightful to the viewer.

BRIEF DESCRIPTION OF THE SEVERAL VIEWS OF THE DRAWINGS

Fig. 1 An exploded perspective view of preferred embodiment showing major elements of present invention of artwork display means.

Fig. 2A Perspective view of typical member of artwork containment frame.

Fig. 2B Sectional view of typical member of artwork containment frame.

Fig. 3A Perspective front view of ventilated light box assembly.

Fig. 3B Same view, showing multiple light sources.

Fig. 4A Perspective view of back of ventilated light box assembly.

Fig. 4B Sectional view of ventilation flue.

Fig. 5A Front view of module assembly.

Fig. 5B Side view of module assembly.

Fig. 5C Vertical medial section view of module assembly.

Fig. 5C1 Enlarged sectional view of encircled portion of 5C.

Fig. 5C2 Enlarged sectional view of encircled portion of 5C showing thick platen.

Fig. 6A Perspective view of ventilation flue.

Fig. 6B Longitudinal sectional view of ventilation flue.

DESCRIPTION OF THE INVENTION - MAIN EMBODIMENT

Present invention is compatible to embodiment in many differing modes, and while there will be described hereinafter the preferred embodiment of the invention and options thereto, there is no implication that there are limitations to any ramifications suggested by art taught herein.

Referring to Assembly No. 1, a system overview of preferred embodiment of present invention, it is disclosed that there are FOUR PRIMARY ELEMENTS (Parts Nos. 10, 11, 12 and 13) comprising this invention.

ARTWORK DISPLAY PLATEN, ("Platen"), Part No. 10.

Platen sustains artwork to be displayed and optimally matches dimensions of the artwork proper. In preferred embodiment it is a clear and rigidly planar sheet of plastic sufficiently strong to support any artwork displayed, dimensioned to fit into or onto the front edge of the Artwork Containment Frame ("Frame"), Part No. 11. Said Platen optionally is a sheet of glass, ceramic, wood, plaster, or any other material answering its required dimensional and physical requirements.

Platen in preferred embodiment is secured within the face of Artwork Containment Frame ("Frame"), Part No. 11, by means of a simple rotatable "clip" formed of sheet metal, plastic or other suitably rigid material. Optionally, it is secured by means of any one or combination of devices dedicated to such utility, such as spring clamps.

A separate artwork not applied directly onto or into Platen in preferred embodiment is attached to Platen by means of simple rotatable clips made of metal, plastic, ceramic and the like sized to accommodate varied thicknesses of said artwork. Options are attachment means such as clamps, slide latches, spring clamps or other such devices.

ARTWORK CONTAINMENT FRAME ("Frame"), Part No. 11

In preferred embodiment Frame typically securely retains edges of Platen and is assembled of mitred lengths of wood moulding. Material employed also is plastic, metal, ceramic, glass or any organic/inorganic composition of durable and machinable character. The size and strength of Frame is modified as required for functionality relating to considerations imposed by bulk and weight of artwork to be displayed or as required by inclusion of multiple Light Diffusion Sheets ("Sheet") Part No. 12, or as required to accommodate heavier, larger or dimensionally unique artworks, or any other reason(s).

LIGHT DIFFUSION SCREEN(S) ("Screen") Part No. 12

In preferred embodiment Screen is formed of translucent, colored or clear rigid acrylic plastic material, configured to disperse and direct to front of Module light emissions from light source situate in Light Box. Perimeter edges of Screen fit upon recessed inner ledges within back surface of Frame, whereto they are secured by means of four or more flat-head screws as required for use in wood, metal, plastic, ceramic, and the like.

LIGHT BOX ("Box") Part No. 13

Preferred embodiment of Box is formed of rigid, heat-tolerant plastic, wherein the inner surfaces have been made light-reflective by application of silvering, metallic paint, silver leaf, paint or any other means of reflective character. Sides of Box are dished concavely outward and taper such as to direct reflected light forward.

Top and bottom of Box are pierced by two or more air-ventilation holes proximate to back of Box. Sockets or other mountings for light sources situated in sides of Box are installed in openings therein provided, the preferred light sources being conventional. Box is secured into back of Frame by means of flat-head screws passed through Light Box Attachment Flange Screw Holes pierced through Light Box Attachment Flanges (Part No.18), then through matching holes drilled in edges of Screen and back of Frame.

VENTILATION FLUE ("Flue") Part No. 14 .

Flue is designed to discourage exit of light, and in preferred embodiment is formed of heat-tolerant, rough-textured dark plastic or metallic screening of sufficient mesh density to discourage passage of light. Flues are secured to Box by means of screws, heat-resistant cement or adhesive, soldering or other sufficient means.

LIGHT SOURCE (Part No. 15).

Light Source in preferred embodiment is conventional long, clear-glass light bulb (Fig. 3-A) uniquely coated full-length, internally or externally with reflective mirror silvering on one-half of circumference such that all light generated is emitted from uncoated, clear side.

LIGHT SOURCE SOCKET (Part No. 16).

Socket in preferred embodiment is Levitton Mfg. Co. surface-mounted cleat lamp-holder, sized for small base light bulbs using up to 125 watts of power. Escape of light through holes provided for light sockets or mountings is prevented by proper installation of light socket devices.

POWER CORD (Part No. 17).

Preferred Power Cord is conventional unit available commercially, with two or more cords being combined into a single cable fitted to connect to power outlet.

LIGHT BOX ATTACHMENT FLANGE ("FLANGE") (Part No. 18)

In preferred embodiment Flange rigidly secures Box to Frame and fastened by means of flat-head screws. Upon assembly of Module, Flange is placed on edges of Screen(s) within recessed back edges of Frame, with fastening screws passing through holes provided in edges of Screen(s) into body of Frame.

LIGHT BOX ATTACHMENT FLANGE SCREW HOLES (Part No. 19)

No operating directions are necessary, as their function is apparent.

LIGHT BOX VENTILATION HOLE (Part No. 20)

In preferred embodiment Ventilation holes to admit air are located at bottom of Box, and to vent heated air are located at top of Box

COMPRESSIBLE SPACER (Part No. 21)

Spacer is employed in preferred embodiment in event depth of mounting ledge for Platen within inner edge of Frame exceeds thickness of Platen, being any compressibly-elastic material capable of exerting sufficient pressure to prevent light exit between outer periphery of artwork and mounting surface of separate ornamental exhibiting device such as a picture frame.

ARTWORK CLAMP (Part No. 22)

In preferred embodiment Clamp is simple, rotatable "clip" readily available commercially, or fabricated of sheet metal to fit.

DESCRIPTION AND OPERATION, ALTERNATIVE EMBODIMENTS

ARTWORK DISPLAY PLATEN ("Platen") Part No. 10

An option to preferred embodiment is employment of Platen itself as an independent artwork, upon or within which artwork is imposed. A unique new art media is introduced wherein conventional paints, acrylics, chalks, pencil, etc, to be applied must be modified in order to render them sufficiently translucent to permit light transmission as required .

A further Platen option is the full or partial lamination of multiple planar or non-planar sheets of a translucent or transparent material, wherein such sheets are similar or dissimilar in: (1) Color; (2) In physical and light-transmission properties; (3) Of composition resulting in reaction to light such as fluorescing properties; (4) Of same or differing geometry and dimensions; (5) Or other features compatible to such laminating.

A further option teaches Platen is clear or varicolored and preprinted with designs and images to be completed by the artist.

A further option of Platen has all perimetral edges silvered or otherwise coated with any opaque paint, foil, plastic, etc., to defeat light exit from such edges and redirect light back into Platen proper.

A further option permits light to exit Platen edges into surrounding containment structure such as picture frame which, if translucent or transparent at perimeter of Platen, will be caused to glow.

A further option to Platen formed of any light-transmitting material is beveling or rounding downward the perimetral edges of Platen to match front surface-level of Frame, which configuration will surround the artwork with a "light frame".

A further option to Platen when employed in combination with picture frame is attachment to surface facing viewer of a narrow reflector strip closely to edges of Platen, whereby light is directed outwardly onto adjacent surfaces of picture frame. Reflector strip is made of any suitable material made reflective by means of back-coating, plating or any other effective means, configured with concave or flat section such as to reflect light from Platen laterally onto the picture frame, without exposing such light to viewer.

A further option is Platen configured with multiple dissimilar laminations, colored either wholly or varicolored sectionally, providing a background for application of innovative art.

A further optional Platen is rendered by addition of sheets or partial sheets of same or differing translucent or transparent materials, colored or not, clear or opaque, resulting in a work similar to stained glass or artful collage.

A further option is Platen configured in varying sizes and media types to be accommodated within corresponding inter-changeable Frames configured to fit such platens,

A further option is Platen or multiple, layered Platens wherein are contained artfully disposed wires, threads, fibers or any colored or uncolored filamentary elements with single or multiple strands loosely ordered or interwoven.

A further option is Platen artfully embedded with electrically conductive filaments enabling corresponding coloring in affected regions of Platen when electrical power is applied to filaments.

A further option is introduction of audio/music speaker system to Platen, wherein volume and quality of sound is electrically controlled remotely and coordinated with visual displays as desired.

A further option is Platen whereon is imposed a clock face electrically controlled remotely.

A further option is Platen wherein are imposed wires in a chart-like or grid pattern controlled remotely by means of interconnecting wiring.

ARTWORK CONTAINMENT FRAME ("Frame") Part No 11

Optional is Frame wherein front surfaces are configured to permit Platen to fit and be secured into an ornamental viewing frame of choice, such as a picture frame.

A further option is multiple, interchangeable Frames configured to accommodate Platens of varying sizes and media varieties.

LIGHT DIFFUSION SCREEN ("Screen") Part No. 12.

An optional employment for Light-Diffusing Screen is to provide secondary light into the Module by means of insertion or attachment of light sources at edges of Screen, such as by surrounding perimeter of Screen with illuminated tubing.

VENTILATED LIGHT BOX ("Box") Part No. 13.

Optionally, Box is formed of sheet metal, opaque plastic, ceramic, organic or inorganic compositions, or any other material suited to the purpose and duty, coated internally with reflective means such as silvering, paint, metallic paint, tin plating or any other suitable means.

A further option to discourage mechanical abrasion and possible impact damage to Box is securing of protective panel to back of Box by means of machine screw with chrome-plated head inserted through Box back panel thence through protective panel where nut is tightened over spring washer.

A further option if substitution of a piano hinge for Attachment Flange on one side of Box, in order to facilitate service access.

A further option is insertion of adaptor between Box and Frame to accommodate an incompatible connectional configuration.

VENTILATION FLUE ("Flue") Part No. 14

Optional construction of Ventlation Flues employs fine-mesh metallic screen, black or dark in color, strongly fixed to exterior top and bottom body of Box by means of solder, heat-resistive cement or adhesive, or any other positive means.

A further option is use of a rigid and heat-tolerant, moldable material in forming of Flue, interior surface of which is finished in raised, randomly profuse ridge-like protrusions to diffuse and discourage exit of light, and coated with a heat-tolerant black media. Flue is fixed to body of Box by means of any suitable solder, weld, rivets, adhesive or cement or any other suitable bonding means or method.

A further option in attachment of Flue to Box is fixing channel-shaped rigid strips to exterior of Box to span vent holes, onto which strips Flue are slidably and tightly installed.

A further option is replacement of Flues at bottom of Light Box with one or more air blower(s) to force cool air through Box.

LIGHT SOURCE (Part No. 15)

Options to reflective coating applied to interior half-circumference of preferred long-bulb Light Source include metallic paint, ceramic coating or other effective media.

Optional to one-side coating of full-length of incandescent bulbs is substitution of rotatable reflector "caps" such as those in wide use on night lights, mechanics' work lights and the like.

Optional light sources are fluorescent, ultraviolet, infrared, neon, halogen or any other light source, colored or not and in non-uniform combination if desired for effect. A refined option is use of light sources in the primary colors, that individually are controlled by means of dimmer command, enabling viewer to adjust light falling upon artwork to any intensity, color or shading in order to intensify or diminish any effect desired (a sunset scene could be made to truly “come alive”).

A further optional light source is provided by means of coating interior of Box and Frame with a medium caused to fluoresce when exposed to ultraviolet light.

LIGHT SOURCE SOCKET (Part No. 16)

Options to preferred embodiment are such as those supplied by Angelo Bros. Co.. ("Snap-In Socket"), or many conventional small lamp sockets or "candelabra bases" set on threaded nipples secured by exterior crossbars, or nuts over washers.

POWER CORD (Part No. 17)

Options to conventional power cords include inclusion of dimmer device preferentially controlled by timer to permit increasing or decreasing light brilliance of artwork displays, as programmed to viewer's pleasure.

A further option is use of threaded or press-on devices at power cord connections to Light Box light source.

A further option is use of "harness" combinations of cable, cords and/or wire connectors, gathered into a single cable outside Box and so fed into a single plug-in connective device.

LIGHT BOX ATTACHMENT FLANGE (Part No. 18)

An alternate to Flange on one side of Box is substitution of piano hinge for that flange.

A further option is Flange secured to Frame by means of clamping device such as spring clamp, rotatable clip, elastic compression, cinched strap, slidable or any other device effectively securing Box to Frame, in combination with piano hinge or not.

LIGHT BOX VENT HOLE (Part No. 20)

An optional improvement of simple vent hole(s) is installation of air blower(s) at lower vent holes to force ambient air through Light Box.

A further option for large light boxes containing multiple light sources is forcing pre-cooled air into body of Light Box at bottom.

COMPRESSIBLE SPACER (Part No. 21)

Optionally, Spacer may be secured to front or to back edges, or both, of Platen, rather than being a separate element.

CONCLUSION, RAMIFICATIONS AND SCOPE OF INVENTION

It has been demonstrated herein that present invention conveys a wide array of inherent advantages not enjoyed by prior art relating to display of back-lighted artwork, not to mention the enabling of entirely novel art forms hitherto unknown. While DESCRIPTION contains many specifications and options, these should not be construed as limitations on Scope of invention. Due to the exhaustive flexibility of present invention, any additional variations are implicit and become practicable.

Accordingly, Scope of invention should be determined not only by embodiments made known and described herein, but by implicit alternative embodiments and their legal equivalents.

OPERATION OF THE INVENTION

It is implicit that dimensions of Module elements are adjusted to accommodate unusual increases in size and weight of artworks to be displayed.

Preferred embodiment of present invention teaches employment of Module as a "portable" artwork display unit, wholly self-contained, that is fixed into any suitable artwork display frame, which universal utility marks its portability feature. Module is attached to picture frame of any other such display device by conventional means such as blocking (with screws if needed), snap

clamps, spring clamps, rotatable clamps or spring devices, or any other such simple device or technique.

Module is wall-mounted, table mounted, floor mounted, easel mounted, or any other such accommodation desired. In event viewer wishes to do so, Module is fitted with a simple skirt to conceal its construction. Electrical power is fed to Module in conventional manner from a convenient outlet, with a cord or cable colored to satisfy.

A) ARTWORK DISPLAY PLATEN (Part No. 10)

Present invention teaches a wide array of optional choices relating to artwork media, artwork forms, artwork uses and artwork assembly to Platen. Majority of such options are simple derivations of conventional, however, a few are quite technical in nature albeit simple in description and manufacture. The latter are found in descriptions herein associative with wires or patterns thereof conductive to electricity.

All such operation is achieved by means of devices or controls currently available commercially. Similarly, sound is employed within scope and uses of innovations taught herein by inclusion of digital recording or an other similar means into any system, to be controlled simply by hand remote control, or by emplacement of a computer element to coordinate sound source with graphics.

Application of options is clearly taught by present invention. For example, use of Platen as an independent artwork upon (or within) which artwork would be directly applied requires no unusual operational skills, but introduces an art mode in use and application of media not contemplated heretofore that would challenge any innovative artist. Laminated work (collage) described is of any reasonable thickness and still be easily attachable to and displayed within artist's decorative frame. A pattern preprinted directly upon Platen for completion by an amateur artist needs no further clarification, as can be said of use of colored platens, even in multiplicity taught herein.

The inclusion within or on Platen or any appurtenances thereto of fluorescent character, colored or not, is made notable when such inclusions are exposed to ultra-violet light generated in Ventilated Light Box, and that light source is varied intensity by voltage controls, the fluorescent effects is dramatic, indeed. Additionally, in similar teaching, light falling upon Platen from within is timed to cause an artwork depicting a sunset to descend from brilliance gradually into afterglow. Similar effects are achieved at will.

The introduction of artfully disposed fibrous elements into or onto Platen or any attachment thereto introduces still another completely new art skill, with unlimited scope of expression

The progressive techniques, methods and skills taught by present invention encompassing Platen use are completely new and previously unknown to the art, permitting unprecedented flexibility of artistic expression and scope and bring to the artistic community vast new opportunity.

B) ARTWORK CONTAINMENT FRAME (Part No. 11)

Frame is a simple device designed to bring securely together the other three main elements of present invention. Its function allows no true dynamics, however it is integral to the absolute requirement of light reflection upon Platen, etc., and must be sufficiently sturdy to support Module proper without deflection. Thus, sectional dimensions may be altered to support Module exposure as necessary. Module parts are assembled in 'sandwich' form, with Platen facing viewer and secured to Frame, the Screens then fitted into back of Frame to be covered and held in place by fastening of Box.

C) LIGHT DIFFUSION SCREEN(S) Part No. 12

Screens are included in this discussion for convenience, not as a proprietary element of Claims, in order to illustrate their use. Function of Screen is to scatter, diffuse, disperse uniformly all light directed upon it (them) from Ventilated Light Box, although such light will already be widely dispersed by previous effective means. Present invention employs all such means to enable display of artworks to greatest advantage and enjoyment of viewer. Teachings of present

invention include advantages gained by employment of a multiplicity of screens, enabled by configuration of Artwork Containment Frame or obvious modification thereto.

In practice, Screen is clear, white, colored or sectionally-colored or framedly focused at mid-portion or any other sections of artwork as may be desirable to meet dictates of artwork. An option to use of conventional diffusion screens is employment of or development of a screen or screens designed to focus light from the Ventilated Light Box centrally upon artwork.

D) VENTILATED LIGHT BOX Part No. 13

Subject element of Module permits wide-ranging imaginative excursions. Said Box in present invention is source of light directed upon artwork, and is fitted with one or a multiplicity of light sources of various types of emanations, and is designed to direct such light centrally or to disperse uniformly all light emissions. Box may be provided with facility to embrace not only preferred embodiment of conventional light bulbs, colored or not, but can be made to accommodate fluorescent bulbs, colored or not, such as commercially available short tubes, or bulbs inclusive of ballasts enclosed within their bases, infrared bulbs; neon tube light elements colored or not, with transformers, ultraviolet bulbs; halogen and other light sources. Production of unusual light may be provided by means of coating interior of Box with medium that will fluoresce when exposed to ultraviolet light.

In preferred embodiment light sources within Box ideally are controlled by means of an in-line dimmer control, turned on or off by means of an in-line switch. Lighting is controlled by means of flexible controller programmed to conform with artwork display sequential needs, and made to illuminate or dim by means of a timer. An innovative option is to install light bulbs in the primary colors and control their brightness individually by means of dimmer controls (with computer control if desired).

Light emitted from light sources (masked as hereinbefore described) impinges upon all rear and side surfaces of Box to be mixed and diffused prior to being directed upon Light Diffusion Screen(s).

Ventilation is effected by means of convective routing, which employs vent-holes in exterior of the Box at bottom for new air entry, and in exterior f the Box at top for air exit. Ventilation Flues (Part No. 4) covering all such vent holes discourage light exit that would distract viewer.

DRAWINGS REFERENCE NUMERAL LIST

Part No.	10	Artwork Display Platen
	11	Artwork Containment Frame
	12	Light Diffusion Screen
	13	Light Box
	14	Ventilation Flue
	15	Light Source
	16	Light Source Socket
	17	Power Cord
	18	Lightbox Attachment Flange
	19	Lightbox Attachment Flange Screwhole
	20	Lightbox Ventilation Hole
	21	Compressible Spacer
	22	Artwork Clamp

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DRAWING REFERENCE NUMERAL WORKSHEET

Part No.	Part Name
10	Artwork Display Platen
11	Artwork Containment Frame
12	Light Diffusion Screen(s)
13	Light Box
14	Ventilation Flue
15	Light Source(s)
16	Light Source Socket
17	Power Cord
18	Lightbox Attachment Flange
19	Lightbox Attachment Flange Screwhole
20	Lightbox Ventilation Hole(s)
21	Compressible Spacer
22	Artwork Clamp